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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,348	08/29/2003	Franklin J. Wall JR.	LUM-03-06-10	1306
32566	7590	08/23/2005	EXAMINER	
PATENT LAW GROUP LLP 2635 NORTH FIRST STREET SUITE 223 SAN JOSE, CA 95134			FARAHANI, DANA	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/652,348

Applicant(s)

WALL, FRANKLIN J.

Examiner

Dana Farahani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/25/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 18-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 16, 17, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (US Patent Application Publication 2003/0164503).

Regarding claims 1, 3, 7, 9, 16, 17, 23, and 24, Chen discloses in figure 6B, a semiconductor light emitting device, shown as element 1000, and the layers above it; and a substrate 125 comprising an aluminum ceramic core 120 and at least one metal layer 122 overlying the core (note that the light emitting device would be mounted on the substrate. See fig. 6C). Although, Chen does not expressly disclose the layer is copper with the thickness of at least 4 mil., it would have been obvious to one of ordinary skill in the art at the time of the invention to make the adjustments regarding the thickness and material of the layer, in order to accommodate LED devices with desirable sizes on the substrate, and use copper, since copper while being a good conductor, is relatively cheap. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) for the proposition that discovering an optimum value of a result effective variable involves only routine skill in the art. See also *In re Leshin*, 125 USPQ, for the proposition that it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

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Regarding claim 2, Chen discloses the limitation in the claim, but does not disclose the light-emitting element has a III-nitride light-emitting layer. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a III-nitride type light emitter layer, in order to emit any color of desired light (i.e. UV-red) or combinations thereof (e.g. white).

Figure 1 of the instant application provides further evidence that it is conventional to flip-chip mount a group III-nitride LED.

Regarding claims 4, 5, and 6, at least one lead/wire/pad 124 is connected to the layer.

Regarding claim 8, note that the bottom layer 122 could be the core, in which case the other layer 122 is bonded to the core by an active metal braze 120. Although, Chen does not disclose layer 122 is ceramic, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the layer as an aluminum layer (which is defined by applicant as a ceramic material, see page 2, the last line, and claim 3), since aluminum has excellent conductive and heat radiating properties.

3. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claim 1 above, and further in view of Raj et al., hereinafter Raj (US Patent Application Publication 2002/0175339).

Regarding claim 10, Chen substantially discloses the limitations in the claim, as discussed above, except for a second substrate layer between the copper substrate and the light emitting device.

Raj discloses a transceiver in figure 4; wherein light emitting devices 110 are mounted on a substrate 106. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use another substrate along with the corresponding light emitting devices

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on that substrate on the substrate of the Chen's structure in order to utilize the structure in applications such as fiber optics, as Raj reference teaches.

Regarding claims 11 and 13, Raj discloses bond pads 402, and insulating layers (see paragraph 29).

Regarding claim 12, Chen in view of Raj substantially discloses the limitations in the claim, as discussed above, except for an AlN, Al₂O₃ or silicon nitride insulating layer. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an AlN insulator in the optical fiber circuitry in the structure since it is known that this material has the same thermal coefficient as ceramic and therefore is suitable to use it with the light emitting device of Chen.

Regarding claim 14, Raj further discloses a base connected to the substrate (see claim 10).

Regarding claim 15, Raj discloses a lens 112 included with elements 110.

Product-by-Process Limitations

A comparison of the recited process with the prior art process does NOT serve to resolve the issue concerning patentability of the product. *In re Fessman*, 489 F2d 742, 180 USPQ 324 (CCPA 1974). Whether a product is patentable depends on whether it is known in the art or it is obvious, and is not governed by whether the process by which is made is patentable. *In re Klug*, 333 F2d 905, 142 USPQ 161 (CCPA 1964). In an ex parte case, product by process claims are not constructed as being limited to the product formed by the specific process recited. *In re Hirao et al.*, 535 F2d 67, 190 USPQ 15, see footnote 3 (CCPA 1976). Therefore, in claims 7 and 17, the

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process of bonding (or in case of claim 7, the method which is used in bonding) the copper layer to the core is given no patentable weight.

Response to Arguments

4. Applicant's arguments with respect to claims 1-17, 23 and 24 have been considered but are moot in view of the new ground(s) of rejection.

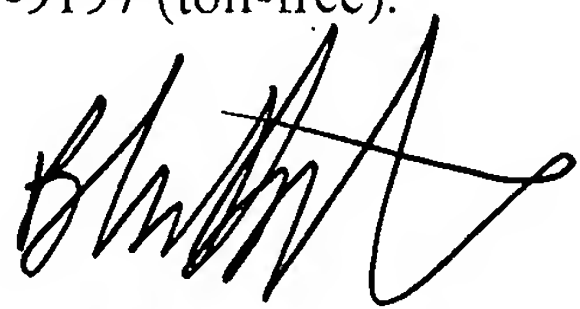
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Farahani


B. WILLIAM BAUMEISTER
SUPERVISORY PATENT EXAMINER